

Appl. No. 10/660,169
Amdt. dated October 16, 2006
Reply to Final Office Action of August 16, 2006

OCT 16 2006

AFTER FINAL EXPEDITED PROCEDURE

REMARKS

Claims 1 to 44 were pending in the application at the time of examination. Claims 1 to 7, 9 to 12, 14, 15 to 18, 20 to 28, 30 to 34, 36, 37, 39, 40, 42 and 44 stand rejected as anticipated. Claims 8, 13, 29, 35, 38, 41 and 43 stand rejected under 35 U.S.C. 103(a).

Prior to considering the rejection, Applicants note that a Revocation and Substitution of Power of Attorney was filed in the above application and received by the USPTO on October 13, 2006 by facsimile. Please direct all correspondence in the above application to Customer Number 24209.

Claims 1 to 7, 9 to 12, 14, 15 to 18, 20 to 28, 30 to 34, 36, 37, 39, 40, 42 and 44 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,996,071, hereinafter referred to as White.

Applicant respectfully traverses the anticipation rejection of Claim 1. To make a prima facie anticipation rejection, the MPEP directs:

TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." . . . < "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required.

MPEP § 2131, 8th Ed., Rev. 5, p. 2100-67 (August 2006). It is noted that this directive stated the claim element "must be" shown in as complete detail and arranged as required by the

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claim. Thus, the first issue is what is shown and required by the Claim 1.

The MPEP puts forth specific criteria that are to be followed in interpreting a claim. These criteria will be quoted and applied to Claim 1. A comparison of the correct interpretation of Claim 1, as required by the MPEP, with White will demonstrate that the anticipation rejection of Claim 1 is not well founded.

The MPEP requires:

*>USPTO< personnel must first determine the scope of a claim by thoroughly analyzing the language of the claim before determining if the claim complies with each statutory requirement for patentability. (Emphasis in original.)

MPEP § 2106, 8th Ed., Rev. 5, p 2100-6 (August 2006).

The MPEP further requires:

>USPTO< personnel are to correlate each claim limitation to all portions of the disclosure that describe the claim limitation. This is to be done in all cases>, regardless of whether< the claimed invention is defined using means or step plus function language. The correlation step will ensure that *>USPTO< personnel correctly interpret each claim limitation.

The subject matter of a properly construed claim is defined by the terms that limit its scope. (Emphasis added.)

MPEP § 2106, 8th Ed., Rev. 5, p 2100-7, (August 2006).

Claim 1 recites in part:

. . .storage for branch direction indications and associable branch prediction qualifier indications

Thus, Claim 1 first recites "branch direction indications" and "branch prediction qualifier indications." According to the above requirements of the MPEP, these elements must be

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correlated to all portions of the disclosure that describe these claim limitations.

The correlation of the "branch direction indications" to the description shows that an explicit definition of "branch direction indications" has been provided in the description, i.e.,

A branch direction indication indicates the direction of a branch instruction instance with respect to branch prediction

Specification, Paragraph [1018].

Similarly, the correlation of the "branch prediction qualifier indications" to the description shows that an explicit definition of "branch prediction qualifier indications" has been provided in the description, i.e.,

A branch prediction qualifier indication indicates the condition of a branch prediction (e.g., varying levels of confidence or strength of predictions that may be past, current, or future, saturation counters, etc.)

Specification, Paragraph [1018].

Following the MPEP requirement to correlate claim elements with the description shows that the description provides explicit definitions for the elements.

Applicants respectfully note that in view of this correlation of element, the Examiner is permitted to interpret the claims broadly. However, the MPEP and the courts put specific limitations on such an interpretation. Specifically,

CLAIMS MUST BE GIVEN THEIR BROADEST REASONABLE INTERPRETATION

During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." (Emphasis Added.)

MPEP § 2111 8th Ed. Rev. 5, p 2100-37 (August 2006).

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The above correlation of the claim elements to the description shows the limitations on "the broadest reasonable interpretation consistent with the specification." When definitions are provided in the specification, the MPEP gives a concise statement as to the proper claim interpretation:

Where an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim.

MPEP § 2106, 8th Ed. Rev. 5, p 2100-7 (August 2006).

The final rejection as best it is understood combines branch unit 250 with branch target cache 252 with L1 cache 204 of White. However, such a combination fails to use the required interpretation of the claims elements and fails to be supported by any teaching in White.

The rejection relies on the sets in ways 204 (Fig. 6B) of White as branch direction indicators. However, White taught:

The L1 (level one) Cache 204 is a 16K byte unified data/instruction cache, organized as 4 way set associative with 256 sets and 4 ways per set, with each way in each set constituting a location for a 16 byte (4 dword) cache line (i.e., 256.times.4 cache lines). The Cache can be operated in either write-through or write-back mode--to support a write-back coherency protocol, each cache line includes 4 dirty bits (one per dword).

White, Col. 10, line 63 to Col. 11, line 3.

Thus, White taught that L1 Cache 204 is a data/instruction cache. This teaches away from anything concerning a branch direction indicator. White further taught:

FIG. 6c illustrates the BTC 252, and in particular the BTC entries. Each BTC entry includes bits [11:0] of the target address comprising (a) a set number [11:4] formed by the L1 Cache Index, and (b) a byte location number [3:0]. The L1 cache index [11:4], together with a 2 bit way number, identify a particular cache location (set and way) assumed to store the prefetch block containing

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target instruction--the byte number identifies 1 of 16 bytes that is the initial target instruction byte.
(Emphasis Added.)

White, Col. 18, lines 12 to 20.

Thus, White explicitly taught that the bit way number along with the cache index in BTC 252 was used to identify, e.g., address, a particular cache location "containing the target instruction." Thus, the L1 cache is defined as containing an instruction and not a branch direction indicator as asserted in the rejection.

Similarly, the entry in BTC 252 is not described as being a branch direction indicator, but rather is used to identify a particular cache location in the L1 cache. Again, White does not describe this as a branch direction indicator. White stated unambiguously that the cache indices stored in the BTC were not branch direction indicators as recited in Claim 1 by stating:

Storing L1 Cache indices in the BTC, rather than the full target address including the cache tags, has a number of advantages, including reducing BTC die area. Regarding die area, caching L1 Cache tags requires 14 bits--bits [11:0] plus the 2 bit way number--versus 32 bits for the full target address, for an area reduction of 18.times.128 bits.

White, Col. 18, lines 39 to 44. White defined an equivalence between the L1 cache indices and the full target address. Thus, White fails to teach anything concerning branch direction indicators as recited in Claim 1 in the BTC.

White taught aliasing but not between the elements as recited in Claim 1. Rather,

Because the exemplary BTC organization uses a 5-bit index and a 7-bit tag, aliasing is possible between instructions with IPs that are identical for bits [12:0] but different in the upper 20 bits. Thus, a BTC hit may result from the IP for an instruction that aliases with an

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the IP for an instruction that is prior to a COF--a BTC non-COF alias will be detected when no COF is decoded. Allowing aliasing represents a design trade-off to reduce BTC.

White, Col. 18, lines 57 to 64. Thus, when two instructions have instructions pointers that are identical for bits [12:0] and one of the instructions is prior to a COF, White indicated aliasing was possible. However, this fails to teach exactly the structure recited in Claim 1.

Despite the explicit teachings in White with respect to the addressing and aliasing and not branch direction indicators, the rejection recasts the teaching and attaches Applicants' claim language to the regrouped structures without citation to any teaching in White that supports such an interpretation. The MPEP requires that the reference and not a reconstruction in the rejection teach the invention in the same level of detail as recited in Claim 1. Thus, White fails to teach the invention to the same level of detail as recited in Claim 1 and so the anticipation rejection is not well founded.

Applicants request reconsideration and withdrawal of the anticipation rejection of Claim 1.

Each of independent Claims 9, 15, 25, 30, 33 and 39 includes limitations similar or equivalent to those discussed above with respect to Claim 1. Therefore, the remarks with respect to Claim 1 are applicable to each of these claims and are incorporated herein by reference. Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 9, 15, 25, 30, 33 and 39.

Each of Claims 2 to 7 depends from Claim 1 and so distinguishes over White for at least the same reasons as Claim 1, which are incorporated herein by reference. Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 2 to 7.

Each of Claims 10 to 12 and 14 depends from Claim 9 and so distinguishes over White for at least the same reasons as

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Claim 9, which are incorporated herein by reference.
Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 10 to 12 and 14.

Each of Claims 16 to 18 and 20 to 24 depends from Claim 15 and so distinguishes over White for at least the same reasons as Claim 15, which are incorporated herein by reference.
Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 16 to 18 and 20 to 24.

Each of Claims 26 to 28 depends from Claim 25 and so distinguishes over White for at least the same reasons as Claim 25, which are incorporated herein by reference.
Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 26 to 28.

Each of Claims 31 and 32 depends from Claim 30 and so distinguishes over White for at least the same reasons as Claim 30, which are incorporated herein by reference.
Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 31 and 32.

Each of Claims 34, 36 and 37 depends from Claim 33 and so distinguishes over White for at least the same reasons as Claim 33, which are incorporated herein by reference.
Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 34, 36 and 37.

Each of Claims 40 and 42 to 44 depends from Claim 39 and so distinguishes over White for at least the same reasons as Claim 39, which are incorporated herein by reference.
Applicants respectfully request reconsideration and withdrawal of the anticipation rejection of each of Claims 40 and 42 to 44.

Claims 8, 13, 29, 35, 38, 41 and 43 stand rejected under 35 U.S.C. 103(a). Assuming that the combination of references is correct for each of these claims, the additional material

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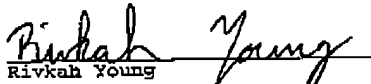
relied upon from the secondary reference does not correct the deficiencies of White with respect to the independent claims from which these claims depend. Therefore, each of Claims 8, 13, 29, 35, 38, 41 and 43 distinguish over the combination of references for at least the same reasons as the independent claims. Applicants respectfully request reconsideration and withdrawal of the obviousness rejection of each of Claims 8, 13, 29, 35, 38, 41 and 43.

Claims 1 to 44 remain in the application. For the foregoing reasons, Applicants respectfully request allowance of all pending claims. If the Examiner has any questions relating to the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant(s).


CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent and Trademark Office, Fax No. (571)273-8300, on October 16, 2006.

Respectfully submitted,


Rivkah Young
Signature

October 16, 2006
Date of


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